



STEPPING UP TO DIGITALISATION

In the quest for higher productivity and service excellence, harbour craft operator Tian San Shipping turns to the Sea Transport Industry Digital Plan to accelerate its digital transformation efforts.

Tian San Shipping (TSS) is one of the largest harbour craft operators in Singapore. Besides providing ferry services for passengers, vehicles and equipment, the company undertakes flotsam and garbage collection and serves as first responders to oil spills in the harbour—ensuring clean waters in one of the world’s busiest ports.

TSS has a 50-year heritage in Singapore and a strong culture of service excellence and continual improvements. However, with a growing fleet of more than 50 vessels deployed throughout the Singapore harbour, TSS decided that a digital transformation would greatly advance the productivity and efficiency of its operations. As such, the priority was to implement a digital platform that could streamline and integrate its business processes, optimise resource allocation, and improve communication internally and with its customers.

Supporting harbour craft SMEs like TSS with the solutions and skills for a swift transition is the **Sea Transport Industry Digital Plan (IDP)**¹⁵ – a step-by-step guide charting out the digital solutions that SMEs could adopt at specific growth stages, as well as the training programmes required to enhance employees’ digital skills.

For TSS, the application for IDP had resulted in the adoption of a vessel management solution in the form of a digital app that could be easily accessed via web browsers or mobile devices. The solution enabled TSS to track the real-time and historical movement of its harbour crafts on a “live” map, use embedded filters to toggle the information display by craft or operation type, search for available harbour craft nearest to a destination vessel, as well as manage its vessel fleet and assign its service crew.

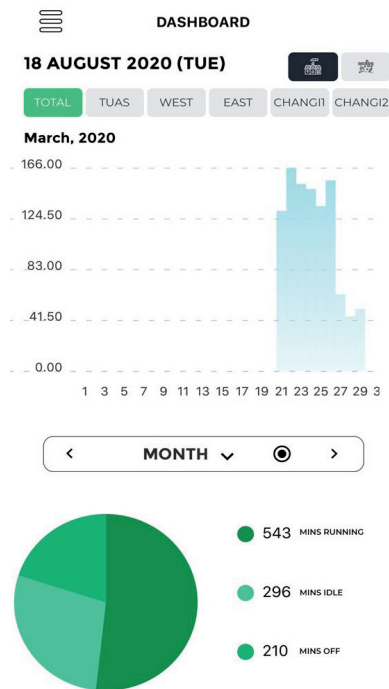
Interestingly enough, the vessel management solution has changed the way TSS operates. Previously, TSS' vessel management processes had been largely reliant on operational know-how and rudimentary technologies. For example, crew and craft assignments and the verification of services rendered were manually performed, while the positions of service craft and destination vessels were communicated using walkie-talkies and mobile phones.

With the vessel management solution in place, productivity enhancements have ranged from improved access to real-time monitoring of vessel fleets, to optimised vessel utilisation through effective planning and deployment, and easier access to records and information.

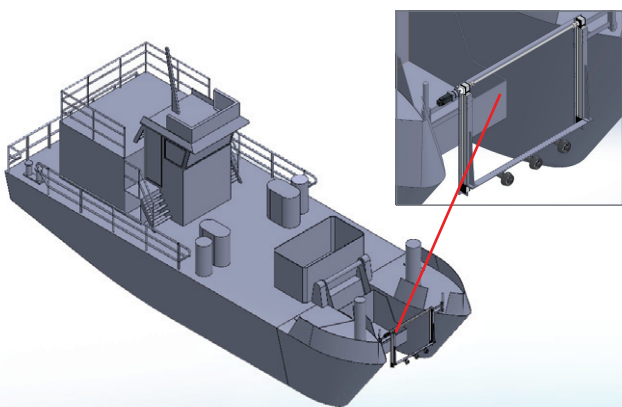
For instance, it used to take 12 minutes for a ground operator to verify the position of one harbour craft and communicate its coordinates via phone, in addition to identifying the position of a destination vessel using portals like Marinet or Marine Traffic. With the "live" map feature in the vessel

management solution, this tedious effort has greatly simplified while the time taken to complete these processes has been halved. Given the number of tasks and variety of processes that had to be completed each day, TSS has estimated that it could save up to 2,630 manhours per year – equivalent to a 77% productivity improvement – when the solution is fully implemented.





More importantly for this service provider, the customer satisfaction scores have improved. Encouraged by the outcomes, TSS' Executive Director Mr Mark Ko is excited about rolling-out the solution to more of his harbour crafts and clients. "We have been highly impressed with how the IDP is focused on ensuring project success. Not only does it identify the relevant and appropriate technologies for companies who are new to digitalisation, it has connected us with a vendor who had a proven track record for delivering on projects.



Schematic of the automated flotsam retrieval device installed on the harbour craft. Credits: Ngee Ann Polytechnic.

"We were also very pleased with the IDP grant application process, which was simple and straightforward. Given what we required, the IDP had put forth a recipe for successful technology implementation, which we achieved in a matter of months. It also gave us a platform to evolve and be ready for the next generation port of Singapore, and enabled us take the first steps in a long journey towards automation," said Mr Ko.

Besides digitalising its core business processes, TSS is also collaborating with Ngee Ann Polytechnic to automate the retrieval of trapped flotsam. Funded by the **Singapore Maritime Institute**¹⁶, the flotsam retrieval project entails the development of a customised device for the safe and easy retrieval of free-drift flotsam, as well as flotsam in hard-to-reach areas like pier walls, columns and staircases. In fact, TSS has forecasted that the device could improve the productivity of such operations by 15% and 50% respectively.

When the project completes in September 2020, TSS would be the first private company in South East Asia to have such an advanced, automated flotsam retrieval craft. The innovation would enable TSS to retrieve far more than its already impressive output of three tonnes of flotsam per day, and contribute to a greater ripple effect on Singapore's environment and marine ecosystem.

Did You Know?

An Industry Digital Plan for the bunkering sub-sector is currently being developed. It would provide a digital roadmap to guide bunker suppliers, bunker traders, bunker barge operators and bunker surveyors in the adoption of digital solutions. Stay tuned for the announcement in 4Q 2020!

Reference Notes:
 15 Sea Transport Industry Digital Plan (IDP) – <https://www.mpa.gov.sg/web/portal/home/maritime-companies/research-development/industry-digital-plan>
 16 Singapore Maritime Institute – <https://www.maritimeinstitute.sg/>